Tri-State Electric Membership Corporation
Smart Grid Project

Abstract

Tri-State Electric Membership Corporation's (TSEMC) Smart Grid project involves the installation of new smart meters, supporting communication infrastructure, and advanced service programs for customers. The project implements two-way communication and utility applications to: 1) enable customers to view their energy consumption at their convenience through the customer Web portal, 2) provide time-based rate programs to customers, 3) provide information and tools to improve outage management, and 4) reduce operations and maintenance costs.

Smart Grid Features

Communications infrastructure includes a two-way meter data network across the entire TSEMC service territory. Power line communication modules relay data from smart meters, through substations, to the TSEMC. An upgraded meter data management system provides a platform for organization and analysis of the meter data and notifications relay data to the customer Web portal. The new communications and metering infrastructure assists with outage management to monitor power disturbances and outages. The utility expects that this capability allows for more efficient outage management, quicker restoration of service, and better distribution reliability.

Advanced metering infrastructure (AMI) includes the installation of 15,000 new smart meters in TSEMC's service territory, covering nearly all current customers. The meters provide capabilities for a variety of current and future customer electricity price and service options that, when adopted by customers, can contribute to reductions in TSEMC's wholesale generation and electricity delivery costs. Operational cost savings are derived from the automation of meter reading and customer services activities through both the AMI and meter data management system. New AMI features include outage and restoration notification and remote service switches so that TSEMC can respond to outages and customer requests more efficiently.

Advanced electricity service options include a Web portal for customers to access their electricity use data and a pre-pay pricing option. The Web portal allows all customers with smart meters to view their electricity use patterns and costs. The pre-pay pricing plan provides customers with added flexibility to pay electric accounts in advance and manage electricity usage to a budgeted amount.

At-A-Glance

Recipient: Tri-State Electric Membership Corporation

State: Georgia, North Carolina, Tennessee

NERC Region: SERC Reliability Corporation

Total Budget: $2,428,454

Federal Share: $1,138,060

Project Type: Advanced Metering Infrastructure and Customer Systems

Equipment
- **15,000 Smart Meters**
- **AMI Communication Systems**
- **Web Portal Access for 18,000 Customers**

Time-Based Rate Programs Targeting All 18,000 Customers:
- **Time of Use**

Key Targeted Benefits
- **Reduced Meter Reading Costs**
- **Reduced Operating and Maintenance Costs**
- **Reduced Truck Fleet Fuel Usage**
- **Reduced Costs from Theft**
- **Reduced Greenhouse Gas and Criteria Pollutant Emissions**

Time-based rate programs include options to enroll in time-of-use pricing. TSEMC operates within the Tennessee Valley Authority, which is set to deploy a wholesale time-of-use rate structure in 2012. TSEMC will design and offer corresponding retail time-of-use rates to its customers at that time. TSEMC expects this program to provide customers with greater control over their electrical costs while encouraging increased awareness of energy use, costs, and bills.

Timeline

Key Milestones	Target Dates
AMI installation start	Q4 2009
Communications infrastructure deployment start	Q4 2009
AMI installation completed	Q1 2011
Communications infrastructure deployment start	Q1 2011

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